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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/615,081

07/12/2000

Yutaka Suenaga

XA-9335

2763

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7590

09/02/2004

MILES & STOCKBRIDGE PC
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SUITE 500
MCLEAN, VA 22102-3833

EXAMINER

ROBINSON, MARK A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/615,081

Applicant(s)

SUENAGA ET AL.

Examiner

Mark A. Robinson

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-40,42,44-49 and 51-99 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-40,42,44-49 and 51-84 is/are allowed.
- 6) ☒ Claim(s) 85-99 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/21/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/04 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 85-87,89,91-95 and 97 are rejected under 35 U.S.C. 102(b) as being anticipated by Elliot 5488229.

Elliot shows a catadioptric projection exposure system including an optical system having a lens and a mirror wherein the optical system is devoid of reflective surfaces that bend an optical axis (see fig. 2--note also the straight axis of symmetry for the elements), further including an aperture diaphragm(at 64) on an image side of the most imageward curved mirror(56). Elliot teaches an NA of 0.6 in col. 2 line 2 and shows object side-telecentricity in fig. 2. Note that Elliot satisfies the limitations of claim 93 since an off-axis object point will form an image off an optical axis of the system. Elliot further shows no obscuration at the exit pupil. Regarding claim 99, note that an annular shaped area may be defined in Elliot's system within which an off-axis image is formed.

4. Claims 85-89 and 91-97 are rejected under 35 U.S.C. 102(e) as being anticipated by Schuster 6169627.

Schuster shows a catadioptric projection exposure system including an optical system having a lens and a mirror wherein the optical system is devoid of reflective

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surfaces that bend an optical axis (see fig. 1--note also the straight axis of symmetry for the elements), further including an aperture diaphragm (certain of the lenses following mirror 23 may be considered an aperture diaphragm since they limit the amount of light reaching the image) on an image side of the most imageward curved mirror(23). Schuster teaches an NA of at least 0.6 in claim 11 and shows object side-telecentricity in fig. 1. Schuster shows two mirrors(21,23) upstream of the intermediate image(Z). Note that Schuster satisfies the limitations of claim 93 since an off-axis object point will form an image off an optical axis of the system. Schuster further shows no obscuration at the exit pupil.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 90,98 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliot.

Regarding claim 90, Elliot is silent as to the shape of the exit pupil. Judging from the optical arrangement, this exit pupil is likely circular. However, inasmuch as this is not expressly taught, a circular exit pupil would have been obvious since such is produced by generally available and easy-to-manufacture lenses and mirrors.

Regarding claim 98, although not taught by Elliot, exposure areas having slit-like shapes are very common in projection exposure systems. It would have been obvious to the ordinarily skilled artisan at the time of invention to include a slit-like exposure area in Elliot's device since such provides an effective illuminated area for scanning.

Regarding claim 99, note that an annular shaped area may be defined in Elliot's system within which an off-axis image is formed.

7. Claims 90,98 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster.

Regarding claim 90, Schuster is silent as to the shape of the exit pupil. Judging from the optical arrangement, this exit pupil is likely circular. However, inasmuch as

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this is not expressly taught, a circular exit pupil would have been obvious at the time of invention since such is produced by generally available and easy-to-manufacture lenses and mirrors.

Regarding claim 98, although not taught by Schuster, exposure areas having slit-like shapes are very common in projection exposure systems. It would have been obvious to the ordinarily skilled artisan at the time of invention to include a slit-like exposure area in Schuster's device since such provides an effective illuminated area for scanning.

Regarding claim 99, note that an annular shaped area may be defined in Schuster's system within which an off-axis image is formed.

Allowable Subject Matter

8. Claims 18-40, 42, 44-49, 51-84 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Robinson whose telephone number is (571) 272-2319.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn, can be reached at (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR

8/26/04


MARK A. ROBINSON
PRIMARY EXAMINER